DOCUMENT RESUME

ED 387 082 IR 017 283

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TITLE The Shared-Ownership Technology Model: Restructuring the Classroom.
PUB DATE 94
NOTE 9p.
PUB TYPE Viewpoints (Opinion/Position Papers, Essays, etc.) (120) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Classroom Techniques; Educational Change; Educational Technology; *Evaluation Methods; Models; *School Restructuring; Secondary Education; Student Evaluation; Student Role; Teacher Role; Teacher Student Relationship; *Teaching Methods
IDENTIFIERS *Learner Centered Instruction

ABSTRACT

A classroom that has been restructured focuses on the learner and the quality of learning. What does a restructured classroom look like? How skillful does the teacher have to be as a manager and how complex do the structures of management become? How do the roles of teacher and learner change in a bottom-up restructured classroom? How do teachers and learners use technology tools? What obstacles and benefits can a teacher expect along the way? These questions are answered through the description of a model of a restructured classroom, an 11th grade United States history class in River Falls, Wisconsin, a model that evolved over a 5-year period. This shared-ownership technology model is actually a combination of six classroom strategies: (1) cooperative learning; (2) a reflective approach to classroom management (facilitative/mentoring); (3) project-based approach to learning; (4) the use of computers and other technology as learning tools in the classroom; (5) authentic assessment; and (6) an emphasis on student empowerment. The model's system of classroom management and evaluation uses "above the line points" (ATLPs), assigned by the teacher during each instructional unit, and "below the line points" (BTLPs), which students earn by choosing optional assignments, projects, committee work, and activities. Several examples of both ATLPs and BTLPs are provided. The implementation process for the shared-ownership technology model is outlined, and the changing roles of the teacher and student are examined. Outcomes of the use of the model are listed, and the relationship between the model and the National Standards Projects is explored. (MAS)

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ED 387 082

The Shared-Ownership Technology Model: Restructuring the Classroom

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A classroom that has been restructured, focuses on the learner and the quality of learning. When the teacher focuses on what is best for the learner, a cooperative, shared-ownership classroom model emerges, and the teacher becomes a facilitator, mentor and manager of information rather than the authoritative source of all information. There is a definite change in the role of the teacher and students. There is also a change in how learning is assessed, with more of an emphasis on performance-based assessment (Glasser 1990).

Although restructuring can be accomplished without technology, it has increasingly shown itself to play a significant and growing role in restructured classrooms (Bagley & Hunter 1992). The computer can now be used as a production tool during the instructional process--a tool that is perfectly suited for enhancing the student's capacity to learn and the teacher's capacity to teach (Green 1989).

Imagine schools where students work on technology projects where students reflect, explore, organize, collaborate and solve complex problems. The project method is certainly not a novel approach to instruction. John Dewey, in reaction to Taylor's model of efficiency in American schools in the early 1900's, promoted the philosophy that learners should be actively involved in the construction of knowledge. But despite Dewey's life-long efforts, Taylor's factory model of lock-step learning still persists in many classrooms. There are, however, a growing number of teachers and administrators who are convinced that the project method provides learners with experiences that will best prepare them for the workplace of the future. At the same time, they realize that the project method calls for restructuring the traditional American classroom.

Dewey would have been elated at the few restructuring efforts, some involving technology, that are now underway in the 90's. But he also would have been frustrated at the many obstacles that impede the progress of restructuring. Political pressure for standardization of curriculum and the assessment of that curriculum, economic pressure for increases in class size and decreases in technology budgets, and societal pressures for a quantitative view of education, e.g. short time periods, test scores and g.p.a.'s have discouraged most teachers and administrators who are trying to restructure classrooms and schools.

What does a restructured classroom look like? How skillful does the teacher have to be as a manager and how complex do the structures of management become? How do the roles of teacher and learner change in a bottom-up restructured classroom? How do teachers and learners use technology tools in a restructured classroom? What obstacles and benefits can a teacher expect along the way? We will answer these questions by describing a model of a successfully and effectively restructured eleventh grade U.S. history classroom--a model that has evolved gradually over a five-year period.

The Shared-Ownership Technology Model

Rick Bagley of River Falls, Wisconsin has been teaching high school history for over two decades. He is a dedicated teacher, who truly enjoys teaching history and enjoys working with teens. Eight years ago, we began to realize that teachers who were using a boss management/authoritarian classroom management style were failing to empower students. We became convinced that a facilitated/mentoring teacher style together with cooperative learning and technology would provide a shared-ownership and non-coercive environment in which the students could reflect, explore, organize, collaborate and solve problems. We began to rethink and then restructure his classroom gradually, but steadily. The result became the **Shared-Ownership Technology Model**.

This model is actually a combination of six effective classroom strategies:

(1) cooperative learning
(2) a reflective approach to classroom management (facilitative/mentoring)
(3) project-based approach to learning
(4) the use of the computer and other technology as learning tools in the classroom
(5) authentic assessment
(6) an emphasis on student empowerment

During the past five years, we observed that with technology tools, learners are empowered to construct and create knowledge and concepts that build upon prior knowledge and interests. We discovered that these projects required a complex, multi-dimensional classroom management and assessment style. The projects led to an assessment method based on performance, which is a more authentic measure of the students' understanding of concepts.

During the first year of restructuring in Rick's classroom, Rick experimented with cooperative group activities. The second and third years, he experimented with and implemented a more complex management structure and performance-based assessment method, ATLP/BTLP (described below). During the first two years, Rick, himself, enrolled in several technology courses taught by the co-authors. He then began to implement in his own classroom, "no tech" or "low tech" projects such as fairy tales, dime novels, comic books for history, what if stories, slide shows and videos. In years four and five, he gradually introduced "high-technology" projects.

What exactly do Shared-Ownership Technology Projects look like?

Ranging from"no technology" to "high-technology" projects (students could further choose their level of difficulty), the projects allow students to organize, explore and construct information. Some examples of Shared-Ownership "high-technology" projects are:

- computer slide shows such as a history of the local town or city, Nationalism, Russian history from Czar Nicholas II to the present day;
- hypercard stacks such as World War II, digestive track, Presidents, homelessness, Desert storm (with VCR footage and video still images) and aviation history;
- calendars such as sports, great moments in history, unusual events in history;
- databases such as historical slide classification and National Geographic;
- newsletters such as a series simulating the Pony Express and a Renaissance newsletter describing the breakthroughs in arts, sciences and medicine during the Renaissance period.

Shared-Ownership Technology Classroom Management and Project Evaluation

Rick designed and uses what we call the ATLP (Above the line points) / BTLP (Below the line points) system of classroom management and evaluation. Each unit describes the options available and the class days assigned to those options. Students may work individually or in groups in the classroom, media center or outside the building. The teacher's role is one of facilitator, mentor and resource person. Rick's goal is to encourage students to become engaged in learning and to go beyond the minimum classroom expectations. ATLP are points assigned by the teacher during each unit. BTLP are points that students earn by choosing optional assignments, projects, committee work and activities. BTLP's are added to the student's semester ATLP total. BTLP's may also be used by students to "buy" services from other students. Students are required to complete at least 45 BTL points each semester, but it is interesting to watch students go beyond the BTLP maximum

limit of 120 points. Students are never coerced to do so--they truly enjoy the learning choices which are available.

ATLP's are earned by completing:

- Daily Work such as readings, writing, and discussions;
- Individual "Sunrise" Tests which may be used to test out of a unit;
- Group Tests are available for some units with an expected mastery of 80%;
- Unit Projects such as debates, presentations, creative writing and plays;
- Semester/year-long projects such as two-day debates and presentations with visuals, panels with outside experts, low-tech slide shows and videos and high-technology projects.

Students are free to complete BTLP projects, establish time-lines, establish criteria and pursue these projects on an independent basis. Some basic guidelines and some quality criteria are provided for various projects. BTLP's empower students to earn points beyond the ATLP system.

Students earn BTLP's by:

- coordinating a committee such as tutoring, media, community service, art,..;
- contracting their tutoring, art or technology expertise to other groups;
- taking sunrise quizzes provided twice per week before school;
- giving oral book reports;
- creating bulletin boards;
- making presentations, teaching and/or providing technology expertise in the elementary or middle schools;

or creating their own BTL point projects after submitting the idea to the teacher.

The Shared-Ownership Technology Model: Implementation

Restructuring takes time! Teachers can begin by experimenting with some cooperative group activities. The entire year's curriculum will eventually be based on the cooperative group learning philosophy and the teacher will provide a syllabus for the year and for each unit that outlines the options and schedule for the students. Lecture and more traditional activities will occur less but will continue to play a role in the classroom together with regular cooperative group daily activities and unit, semester and year-long projects that are group-managed, reflected upon and assessed. Assessment methods will change from tests to projects. This is a natural outgrowth from the cooperative group activities. Each unit may have a project as well as semester and year long projects. Technology projects will be related to topics in the unit or course. Some students may use their new skills by contracting for work with teachers, and administrators within the school, school district and with local businesses.

Shared-Ownership Technology projects will not make a teacher's life any easier! If anything, it is likely to take three to five years for the teacher to create potential topics, to determine criteria for evaluation, to learn the software and to train students to use cooperative learning strategies. However, the teacher can

set his or her own pace for change. It is important for the teacher to remember that they do not need to have an infinite list of projects and do not need to teach every feature for every technology tool.

Currently, at the beginning of each year in Rick's classroom, sample projects are demonstrated and a description of expectations are given. During the first semester, the teacher, students from the previous year and current students who have computers at home teach students to use specific hardware and software tools. New trainees receive an impressive "Certified Technician " certificate. Groups are taught group processing skills and project skills in the context of the first unit. Individuals and groups complete a planning strategy which will assign individuals to tasks and present a plan for group processing and decision making. The groups must compose a statement of vision and purpose and a scope and sequence for each project. For all technology projects, individuals and groups submit weekly group processing reports. Each student maintains a weekly time log, and where and how time is allocated. Groups evaluate each group member and submit a project journal, time log and project evaluation at the completion of the project.

Administrators play an extremely important role in this model. By providing information about district grants for technology, by providing information to parents, and by serving as an advocate for bottom-up models of restructuring.

The teacher must use sincerity, not coercion to convince students, administrators, fellow faculty members, and parents to accept this nontraditional approach to learning and evaluation of that learning. The teacher must show enthusiasm, confidence, pride, and a sense of wonder for the developed projects.

The Changing Roles of the Teacher and the Student

When technology is used with project-based learning, the power and control shifts in the classroom as the teacher and students share the ownership of the learning process. Teachers, who may feel threatened at first end up turning to students for help; no one knows everything. Expert knowledge spreads and the teacher is no longer the sole authority in the classroom.

Of course, the teacher is responsible for designing the curriculum activities, but the responsibility of learning in a restructured classroom is placed firmly in the hands of the student. He or she can choose to do nothing; but accountability to the group generally prevents this from happening.

Reflections on the Outcomes of the Shared-Ownership Technology Model

Rick realized that an economic investment in technology is a pressing problem. But he also believed that technology would empower ALL students and he needed to try, even if it meant beginning with just one computer.

Over time, Rick has found technology to be a great equalizer. Students with learning and social disabilities have become project leaders and have gained great respect from their peers. We have observed an increase in student's motivation to become involved and active in their learning. We have watched as these students:

- develop interdisciplinary projects;
- use greater resources including students and adults, artwork and music, ...;
- use organizational and planning skills;
- discuss and reflect on their learning in a group; and
- spend more time in learning than they would when writing a paper or other non-technology activity.

These projects provide the learner with a successful learning experience because they are: collaborative; resourceful by requiring the use of multiple resources, integrative of key concepts in a core curriculum as well as interdisciplinary; creative; communicative; empowering as they increase student responsibility, effort, choice, self esteem, and interest; and authentically assessed.

Rick's ideas about restructuring continue to evolve and develop--he remains versatile and flexible as he works with different students every year, and as changes occur in computer technology.

How can one model for bottom-up restructuring relate to the National Standards Projects?

Performance assessments that will be designed by the National Standards Project will require individuals to engage in tasks that mirror as closely as possible the conditions under which a particular competence is performed (O'Neil 1993). Tasks and projects of this kind will be the centerpiece of the NSSP assessment system (Simmons & Resnick, 1993). Will the performance standards simply resemble the exams that are currently in use in traditional schools? Or will they resemble the content and performance assessment tools used in bottom-up-restructured classrooms? We argue that it is only when the Standards are based on models of successful, bottom-up restructuring in actual classrooms, will they truly measure the kind of learning that must and should take place in the 21st century.

Conclusion

America's schools, charged with the responsibility of preparing students to function productively as citizens and workers for the next millennium, must face the reality that new technology is one of the most visible and obvious manifestations of the way the world has changed and continues to change (David 1989). The presence of technology does not merely provide an opportunity for change in the way teachers teach and learners learn; it epitomizes that change.

Bottom-up restructuring requires that teachers reflect on and explore new ways to teach and manage a classroom--ways that affect changes in the roles of the students, teachers, administrators, and parents. Restructuring with technology can be accomplished by individual teachers who develop models for classroom management and assessment, and implement them in their own classrooms. It can be done. For the sake of quality learning, it must be done.

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